FORM PTO-1390 (Modified) (REV 11-2000) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY'S DOCKET NUMBER
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371	215236US2PCT
	U.S. APPLICATION NO. IF KNOWN, SEE 37 CFR 09/926564

INTERNATIONAL APPLICATION NO. PCT/SE00/00996	INTERNATIONAL FILING DATE May 18, 2000	PRIORITY DATE CLAIMED May 19, 1999 (earliest)

TITLE OF INVENTION

COMMUNICATION NETWORK SERVICE MANAGEMENT METHOD AND DEVICE

APPLICANT(S) FOR DO/EO/US

NYCKELGARD Soren et al.

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.

2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.

3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below.

4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).

5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))

    a. ☐ is attached hereto (required only if not communicated by the International Bureau).

    b. ☒ has been communicated by the International Bureau.

    c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).

6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).

    a. ☐ is attached hereto.

    b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).

7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))

    a. ☐ are attached hereto (required only if not communicated by the International Bureau).

    b. ☐ have been communicated by the International Bureau.

    c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.

    d. ☒ have not been made and will not be made.

8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).

9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).

10. ☐ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

11. ☒ A copy of the International Preliminary Examination Report (PCT/IPEA/409).

12. ☒ A copy of the International Search Report (PCT/ISA/210).

Items 13 to 20 below concern document(s) or information included:

13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.

14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.

15. ☐ A **FIRST** preliminary amendment.

16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.

17. ☐ A substitute specification.

18. ☐ A change of power of attorney and/or address letter.

19. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.

20. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).

21. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).

22. ☐ Certificate of Mailing by Express Mail

23. ☒ Other items or information:

    Request for Consideration of Documents Cited in International Search Report
    Request for Priority Under 35 U.S.C. 119
    Request for Priority Under 35 U.S.C. 119(e)
    PCT/IB/308

PCTUS1/REV03

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR	INTERNATIONAL APPLICATION NO.	ATTORNEY'S DOCKET NUMBER
09/926564	PCT/SE00/00996	215236US2PCT

24. The following fees are submitted:.

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :

	CALCULATIONS PTO USE ONLY

☒ Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO $1040.00

☐ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO $890.00

☐ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO $740.00

☐ International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) $710.00

☐ International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) $100.00

ENTER APPROPRIATE BASIC FEE AMOUNT =	$1,040.00	
Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 ☒ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).	$130.00	

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	11 - 20 =	0	x $18.00	$0.00	
Independent claims	2 - 3 =	0	x $84.00	$0.00	
Multiple Dependent Claims (check if applicable).			☐	$0.00	
TOTAL OF ABOVE CALCULATIONS =				$1,170.00	
Applicant claims small entity status. See 37 CFR 1.27). The fees indicated above are reduced by 1/2.				$0.00	
SUBTOTAL =				$1,170.00	
Processing fee of **$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)). +				$0.00	
TOTAL NATIONAL FEE =				$1,170.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable).		☐		$0.00	
TOTAL FEES ENCLOSED =				$1,170.00	
				Amount to be: refunded	$
				charged	$

a. ☒ A check in the amount of ___$1,170.00___ to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. _____ in the amount of _____ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. ___15-0030___ A duplicate copy of this sheet is enclosed.

d. ☐ Fees are to be charged to a credit card. **WARNING: Information on this form may become public. Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

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Nov. 19 2001	
DATE	

TITLE OF THE INVENTION

COMMUNICATION NETWORK SERVICE MANAGEMENT METHOD AND DEVICE

CROSS-REFERENCE TO RELATED APPLICATIONS

The present document contains subject matter related to that disclosed in two copending, commonly owned patent applications, the first of which being entitled "Device and Method for Simplified Management of Services in a Communications Network", filed on the same day as the present application, having common inventorship with the present invention and bearing attorney docket No. 2867-0163-2 PROV, and second application entitled "Method, System and Device for Establishing Communication Between Different communication Networks", being commonly owned and filed on the same day as the present document, having Arwald, J. et al. for inventorship and bearing attorney docket No. 2867-0162-2 PROV, the entire contents of both of which being incorporated herein by reference.

BACKGROUND OF THE INVENTION

Field of the Invention:

The present invention is directed to methods and devices for managing services available in a communication network, that includes network components, where the respective network components each provide services.

Discussion of the Background

During the information age, communication services and the infrastructure for providing communications has become a commodity. As the information age progresses, significantly more communication services are offered in various forms, each of which having various attributes and servicing different niche audiences. While in most countries the communication infrastructure, at least for telephony, has been established at one time or another by way of a government corporation, or government condoned monopoly, at least at some basic level telephony-based networks are somewhat compatible. However, as more

-1-

services become available, such as cable television, wireless satellite links, proprietary
wireless local loop, Internet and other terrestrial-based networks. These are an increasing
number of protocols and physical components needed to support those services. To the
extent it is possible for the different communication networks to provide and share

5   information between the different networks, perhaps by way of a caller request, or data
message sent from one network to the next, the burden is on each of the different networks to
provide a customized connection to the other networks. This is illustrated in Figure 1, where
it is seen that different networks, such as GSM 1, ISDN 3, public switch telephone network
(PSTN) 5, cable-TV 7, electrical service 9, Ethernet, 11, and Internet protocol (IP) 13

10   network each provide individual connections between themselves in a "spaghetti-like"
fashion. Consequently, in order to provide connections between the respective networks, the
network connections are made directly, thus requiring many translation devices and adapters
for each network.

As presently recognized, a limitation with this point-to-point interconnection

15   approach for existing network services, is that every time a connection is required between
the different networks, every network must be provided with a new adapter so as to be
compatible with the new network. Adding the adapter is a straightforward process from a
planning perspective, but implementation is very difficult and cost increases significantly
every time a new service is brought on line. Furthermore, such a system provides a barrier-

20   to-entry for smaller proprietary networks that may ultimately bear the burden of funding the
expense of updating the adapters for other existing communication systems.

Within the telecommunications world there are operators who have long offered
telecommunication services within limited geographical areas. However, there are also new
telecommunication operators, and other operators that provide an opportunity to provide

25   telecommunications and other communication services which may be compatible, or even
competitors with conventional telecommunication networks. For example, some of the new
tele-operators include electrical distributers, cable TV operators, Internet providers, wireless
services such as LMDS, etc. Originally, these different "nets" each served different purposes,
and were not configured to work with each other since their services were in different topical

30   areas. However, given the significant event of deregulation of the telecommunications
markets in the United States and in various other countries, it is presently envisioned that a
transformation will occur on a global scale regarding the use of "non-conventional" resources

to provide communication services. It is presently recognized that while these different services may be available, in order to have a commercially viable system that offers the consumer (i.e., subscriber, with commercially valuable service that truly allows the subscriber to have worldwide communication freedom regardless of where the subscriber presently is and plans to be in the future) point-to-point translators or gateways are being viewed as the solution. According to the configuration shown in Figure 1, it is up to the different systems themselves to work out the differences in protocols and communication capacities so as to establish communications between the "unconventional" communication providers, if in fact the communications link can be established at all.

In view of the evolution of communication networks in the present deregulation era, the present inventors have recognized that the conventional point-to-point approach towards connecting different networks, will necessarily provide an economic barrier to new services that wish to enter the communications arena, because as each new service comes on line, additional translation and adapter equipment is required for all of the other systems.

As presently recognized, each of the different nets have one feature in common: each net communicates information from one point to the next. When it comes to communicating between different networks, language barriers (protocol differences) present themselves, which must be overcome in order to share the resources available between the different networks. The communication protocols, are not unlike different European languages. For example, more often than not incompatible "native" languages are not an absolute barrier due to the diversity of language skills held by many people. For example, as presently recognized, while it is possible that when one person approaches another person and begins communicating in language A, the second person will instantly be able to understand and converse in that language so that seamless communication may be had. However, often it is the case that when the first person begins communication with the second person in language A, but the second person recognizes that communication is not possible, and tries to respond with language B, hoping that the original speaker will be able to speak language B. Using this ping-pong approach, the two people eventually reach a determination regarding whether or not there is any common language that may be spoken between the two. When a common language is identified, the two may communicate directly, however, if there is no common language between the two, then it will be necessary to use a translator (a third person) in order to allow for the two to speak with each other. The present invention, to some extent,

leverages on this concept, and provides a central facility that helps facilitate in a fast and efficient manner different communication protocols that may be common between the two different networks so that those networks may operate in a direct communication mode. However, when communication is not possible the central facility provides an infrastructure
5   for converting between the two languages (a translation function). Furthermore, the central facility helps educate both the first network and the second network, for future communication sessions, by efficiently providing to the different communication networks attributes of specific subscribers and networks that are used in the overall communication system.

10   Different networks, offer different technical solutions that attempt to conform with the different types of services that require a connection to an address list, client profiles and the like. However, usually these solutions are limited to a particular type of service, or groups of services in a specific network environment, such as the public switch telephone network (PSTN), GSM, ATM, Internet, Intranet, etc. However, as presently recognized, as the
15   infrastructure for a global communication network that includes different communication subcomponents (e.g. sub-networks), the issue arises regarding how different services will be administered when crossing between network boundaries of the networks that make up the global network. Ideally, from a user perspective and from an implementation perspective, a request for services that originates in one network, yet is performed using the resources of
20   another network, should occur independent of the environment in which the user/client application exists. Furthermore, the overall global architecture of the network should be free of conceptual limitations regarding a user's ability to register in one of the other different networks that make up the global network. Regarding the ability to register, it would be advantageous for a user to be fully registered across all boundaries that exist in the
25   constituent network components, so as to have access universally to all the services offered by the different networks as part of the global network. Accordingly, an ability to register, would ideally include the adaptability needed to provide object, node and network topology independence, yet still meet the varying requirements for call intensity, quality, price and performance, accessibility, security, functionality and geographic disbursement.
30   Furthermore, the architecture of the global network, made up of constituent networks should provide seamless transitions between the separate components so as to provide a service provider with full freedom to choose suppliers, design concepts, operative system, data

system, carrier net, and geographic placement for individual functional modules. However,
in order to tailor a service architecture according to the needs of an individual it is presently
recognized that an efficient solution will include user-distinct links and data settings to the
functional modules. A problem with conventional systems networks and global networks is

5   that the seamless boundaries between the different constituent parts of the networks, inhibits
the free flow of information between the boundaries, including limitations arising from
inefficient accessability of services from users of a different network.

<div align="center">SUMMARY OF THE INVENTION</div>

Consistent with the title of the present section, specific attributes of the present

10   invention are described herein. However, the section entitled Detailed Description of the
Preferred Embodiments provides a more complete listing of the attributes of the present
invention.

A goal of the present invention is to address the above-identified limitations with
conventional systems and devices.

15   The above-identified problems associated with conventional devices and methods, is
overcome with the device and method according to the present invention. The present
invention takes advantage of the features of the inventions corresponding with the previously-
mentioned copending applications which help to establish seamless and efficient
communication between different communication networks as part of an overall

20   comprehensive global communication network. Thus, once the barriers between different
communication networks are part of the global communication networks are dissolved, the
present invention provides a mechanism by which user information is processed within
resources of the different communication networks so as to employ the various services and
attributes associated with the different constituent communication networks that make up the

25   overall network. To this end, information from the information users are transmitted to an
information processor that extracts relevant information and uses the extracted information to
search an information database associated with that information processor or other
information processors so as to identify services that can be accessed and satisfy the service
requested by the user. The information transmitted by the user may be in the form of a

30   "wired" connection, or a radio-based connection as both types of connections and networks
that support the same are constituent components of networks according to the present

invention. The information processor also collects information regarding specific services via one or several of the information databases. services that can be implemented in the calling network (i.e., the network in which the user initiates the service request). The informational databases also store additional information such as telephone numbers,

5   addresses, services available, customer unique information, users, etc.

By implementing the present invention. services that are located in different environments that otherwise would be generally unavailable for general use with sister-networks, become generally accessible to users of any of the networks. The present invention is implementable without regard to the transmission technology employed by the user, but

10   rather enables services in all parts of the global network to be accessible to the user, even though the protocols employed within the different constituent networks may be otherwise incompatible. By enabling efficient communication between the different constituent networks, each individual information processor need only manage a limited number of functional areas, as user requests and service requests are routed to the relevant information

15   processor that could support that service.

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete appreciation of the invention and many of the attendant advantages thereof will be readily obtained as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying

20   drawings, wherein:

Figure 1 is a diagram showing a conventional, evolutionary approach towards establishing communication links between existing services;

Figure 2 is a block diagram of constituent components included as part of the present invention;

25   Figure 3 is a block diagram showing an interconnection between information processors and databases as employed according to the present invention;

Figure 4 is a block diagram of an information processor according to the present invention;

Figures 5A and 5B are data structures of entries included in the respective databases

30   associated with the information processors; and

Figure 6 is a flowchart of a method employed according to the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

As previously discussed, the present invention includes the infrastructure for establishing communication between different constituent networks as part of a comprehensive network, where features and mechanisms that establish the mechanisms for allowing seamless communication between the networks, is described in the corresponding, co-pending U.S. applications previously described. Thus, turning to Figure 2, the information users 20 may include customer applications for e-mail, IP-telephony, and electrical services information, address monitoring functions, number analysis functions employed in telenets, etc. These different users may thus be included in parts of different networks, that may otherwise use incompatible protocols. However, when particular service requests are generated from information user 20, a question arises regarding where such services can be located. According to the present invention, a communication link is established from the information user 20. through connectivity mechanism 22, which may be a wireless link or a wired link, to an information processor 24. The information processor 24 then extracts a service request information from the message and consults with an information database 26 so as to identify different networks that offer the requested service. Once the identification of the network that can support the service request is identified, the information processor 24 optionally informs the information user 20 through the connectivity mechanism 22, or alternatively establishes the connection through the connectivity mechanism 22, directly with the network that can perform the service.

Regarding the connectivity mechanism 22, the present invention is not limited to any one type of protocol, but rather can support various protocol types including SIP, HTTP, HTTPS, INAP, MAP, etc. These various protocols are in turn supported by an underlying transport protocol, such as IP and SS7, on various types of physical connections, including wireless links as well as wired links. The information processors 24 are hosted on hardware platforms that are able to collect and process applications from the information database 26. According to the present invention, exemplary information processors include mobile servers, SIP-servers, mail servers, web servers and the like. Thus separate discrete information processors 24, are not required to be used exclusively according to the present invention, but rather may have a primary purpose, such as to provide a mail server function, where an ancillary service is to serve as the information processor 24 discussed herein.

The information databases 26, while including a computer readable medium, need not

be located in a single geographically unique location, but rather may be distributed if

necessary amongst a variety of different computer readable media. This computer readable

media in the information database 26 will include information such as the telephone numbers

of subscribers, addresses of subscribers, services offered by different networks, customer

5   identifications, users, etc. Number catalogues such as DNS, ILS, etc., are also examples of

such databases.

When a service request is launched by an information user 20, the service request will

be transmitted to an information processor 24 which may attempt to handle the question by

itself if the information processor deems it has the adequate information. However, it is also

10   a feature of the present invention, that one information processor, such as information

processor 24A in Figure 3, will consult with a second information processor, information

processor 24B which may specialize in another functional area. The conditions for when and

where an interaction with multiple information processors arises, may be unique to specific

customers or users, particularly if the service request offered by that particular user is

15   customized to provide such a request. When the information processor, e.g., information

processor 24A, consults its database 24B, so as to determine whether or not the database 24B

includes the identification of resources which may perform the service, the information

processor 24A, may then consult with the information processor 24B in the form of a service

request message so as to retrieve information from its database 26B, and so as to identify the

20   resources available for performing the requested service.

As an example, suppose a person who is the intended recipient of a telephone call has

assigned thereto a telephone number, but depending on the time of day, the day of the week,

etc., different telephone numbers are used for different times of the day. The database 26B

will handle this information, as part of a user profile so that the telephone call may be routed

25   most efficiently directly to that particular called party. Upon calling that party the

information processor assigned to that particular party will be invoked so as to ascertain the

user's profile. The information processor then retrieves the necessary information and

provides this information back to the network terminal from which the information user

initiates the call. In the event that an information processor fails to return an answer within a

30   predetermined timeframe, the calling information processor may opt to use the information

that presently available and arrange a connection to the telephone number that was originally

indicated or to an address that is indicated, without having the full amount of information

available from the user's profile.

In other cases the calling subscriber may request a service that is specified by a different indication in the message sent to its own information processor. At this time, the requested service can be to arrange a conference connection between various ingoing parties.

5   The information processor will then communicate with the other processors so as to identify another one of the information processors that will be able to handle the query and accurately determine how the connection can occur so as to implement the requested service. Once identified, the connection may be established automatically by way of the processors, or alternatively, through signaling proxy mechanism so as to handle protocol translations

10   between the different networks.

Another example is that various individuals may communicate with each other and the information from different databases or an individual database may be passed to the different participants in different versions, depending on the affiliation of the particular individuals with the networks on which they are presently communicating. The individual

15   responsible for initiating the communication will provide the information processor with the necessary information regarding which components in the information may be communicated to which participants, for privacy reasons. Likewise, each of the other participants may also indicate restrictions regarding the information that is provided to the other participants.

Figure 4 is a block diagram of the information processor 24. A system bus 410

20   interconnects a central processing unit (CPU) 401, which provides the processing infrastructure for a primarily software driven information processor 24. The CPU 401 communicates over the system bus 410 with ROM 403, and RAM 402 which provide permanent and read/write memory capacity respectively. The ROM 403 holds the application software for implementing the functions of receiving and interpreting service request

25   messages, coordinating communications between other information processors, and managing information contained in a local database 26. While respective mechanisms shown in Figure 4 are primarily carried out in software, portions of the processing may be performed in hardware, using application specific integrated circuit 404 and field programmable gate array 405. An input/output controller 408 provides communications between other

30   components of the network, so as to receive and send service request messages, and coordination messages between other information processors. A local I/O controller 409, provides a communication link with the database 26 so as to control read/write and data

query operations. Expansion room 411 is contained within the information processor 24 so that as additional resources become available on the global network, additional hardware may be included to support future processing demands.

Figure 5A shows one data structure for a particular user profile stored in the database 26 (Figure 2). The data structure includes three data fields (which may be stored in separate entries in the database, but are nonetheless associated with one another). Data field 501 includes information regarding the particular user's identification. Included with the user ID is billing information, personal information regarding name and the like. In addition, the user ID will include the subscriber-specific information such as the subscriber number which is uniquely associated with that particular subscriber. Field 503 includes an updated net number, which is a specific number at which the subscriber may be located at a particular time, either as identified by the user profile also saved in the database (in field 505 as will be discussed), or also by way of subscriber-specific registration, when the subscriber knows the subscriber will be deviating from the normal pre-programmed schedule previously stored in the database. The updated net number, is quickly identified in the database, as being the location at which the particular subscriber will be located when establishing a communication session. Data field 505 includes particular affiliations associated with a given object for that particular subscriber. In other words, the data field 505 (which may be more than one word in the database entry) includes a schedule for a particular subscriber including associations with the different net numbers for the subscriber according to those particular time frames, as well as protocol attributes associated with the different objects with which the subscriber is associated.

Figure 5B shows another data structure for hosting information regarding the different services that are available from different network and network resources as part of the global communication network. A first data field 507 identifies particular networks. Data field 509 identifies different available services that are associated with that particular network identified in data field 507. Data field 511 includes various management data regarding the attributes and service demands associated with providing services for the different available services identified in data field 509.

Figure 6 is a flowchart of a process employed according to the present invention. The process begins in step S1, where a user initiates a service request message sent to an information processor. The process then proceeds to step S2, where the service request

message is routed to the information processor associated with the user, or perhaps in a second step to another information processor associated with the first information processor. Once the appropriate information processor is identified, the process proceeds to step S3, where a database associated with the active information processor, is searched for components in the network that could perform the requested services. The process then proceeds to step S4, where user-unique information and service-unique information is optionally stored in the database so as to update the database records. The process then proceeds to step S5, where access to the requested service in the network is executed.

The mechanism and processes set forth in the present description may be implemented using a conventional general purpose microprocessor(s) programmed according to the teachings in the present specification, as will be appreciated to those skilled in the relevant arts. Appropriate software coding can readily be prepared by skilled programmers based on the teachings in the present disclosure, as will also be apparent to those skilled in the relevant arts.

The present invention thus also includes a computer-based product that may be hosted on a storage medium and include instructions that can be used to program a computer to perform a process in accordance with the present invention. The storage medium may include, but is not limited to, any type of disk including floppy disk, optical disks, CD-ROMs, magneto-optical disks, ROMs, RAMs, EPROMs, EEPROMs, flash memory, magnetic or optical cards, or any type of media suitable for storing electronic instructions.

Obviously, numerous modifications and variations of the present invention are possible in light of the above teachings. It is therefore to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described herein.

The present document contains subject matter related to Swedish patent application no. 9901820-2, filed in Sweden on May 19, 1999, the contents of which being incorporated herein by reference.

CLAIMS:

1. A device in a communication network having multiple sub-networks, where each of the sub-networks includes services that may be different from that of other sub-networks, comprising:

an information processor configured to receive a service request message from a first sub-network, said service-request message indicate in a service to be executed, said information processor being configured to identify the service; and

an information database connected to said information processor, said information database identifying the different services associated with the sub-networks that are accessible as part of the network, wherein

said information processors, retrieving sub-networks available to provide the service, and initiating a message to establish a communication link with at least one of the identified services that are capable of providing the service.

2. The device of Claim 1, wherein:

said information processor is configured to receive said service request message from at least one of a wireless communication link and a wired-link.

3. The device according to Claim 1, further comprising:

another information processor that is connected with said information processor, said another information processor configured to retrieve information from another database, so as to identify sub-networks that perform the requested service.

4. The device according to Claim 1, wherein:

said information processor being configured to gather information regarding services via said information database and other information databases.

5. The device according to Claim 1, wherein:

said information processor being configured to receive said service request message from a telephone network that includes at least one of a mobile telephone network and a data network.

6. The device according to Claim 1, wherein:

said information database includes a data record associated with a user that includes at least one of a telephone number, an address, a service, customer, or a user.

7. The device according to Claim 1, wherein:

said information processor, identifying a service, and establishing a connection with another sub-network that is different from a sub-network from which the service request message is initiated.

8. The device according to Claim 7, wherein:

said information processor initiates a communication session with a sub-network in which the service identified by the information processor is to be executed.

9. The device according to Claim 1, wherein:

said information processor, being configured to communicate at least a portion of said service request message to another information processor, and said information processor being configured to perform a predetermined operation, if said another information processor does not respond within a predetermined period of time.

10. The device according to Claim 9, wherein:

said predetermined operation being establishing a connection with a predetermined telephone number when at least two telephone numbers are associated with a called party.

11. A method for identifying a sub-network, within a network having multiple sub-networks, that is able to provide a requested service, comprising steps of initiating a service request message;

routing said service request message to an information processor;

searching a database for components in the network that can perform a service requested in the service request message;

and accessing the sub-network identified in said searching step.
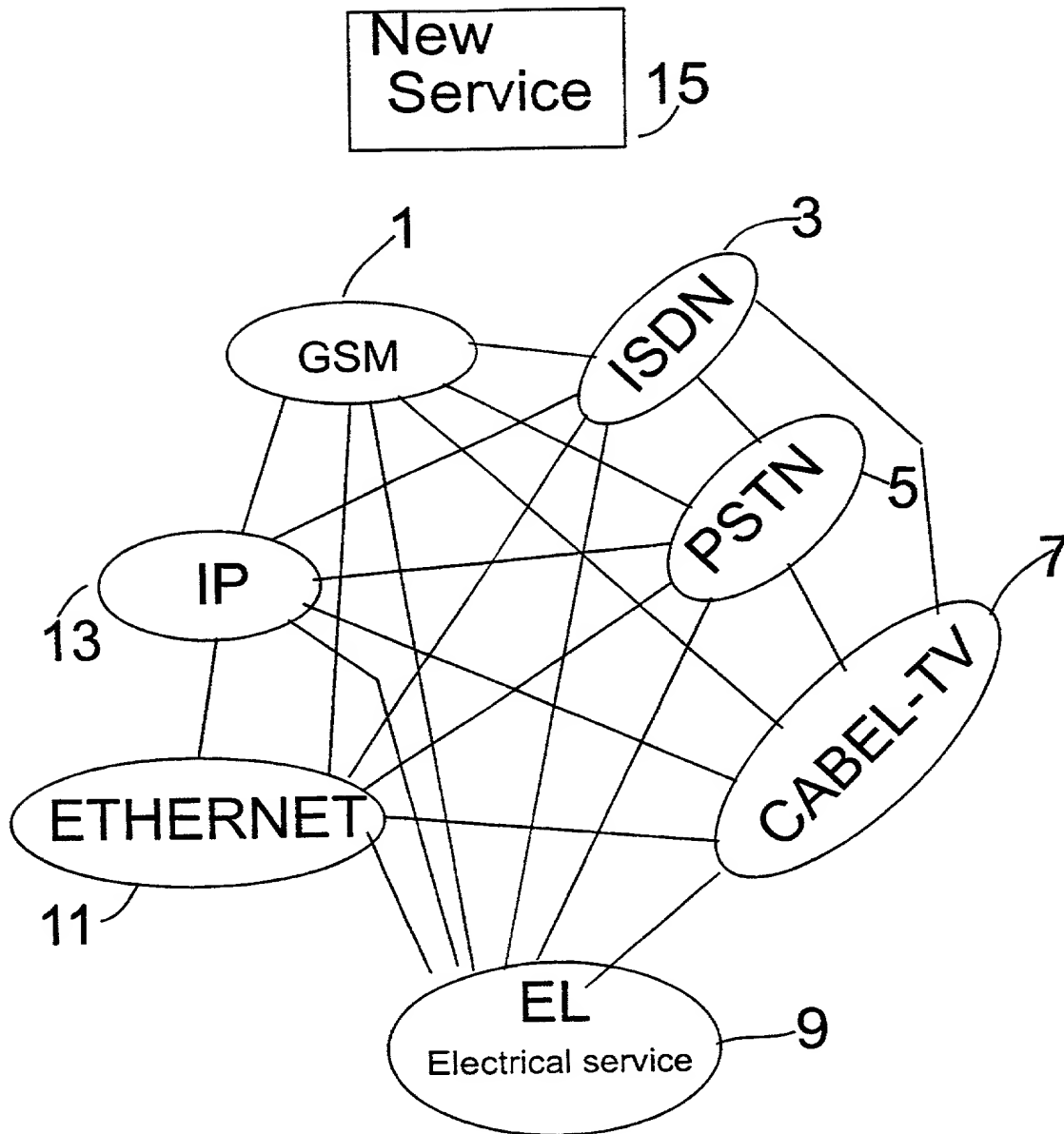
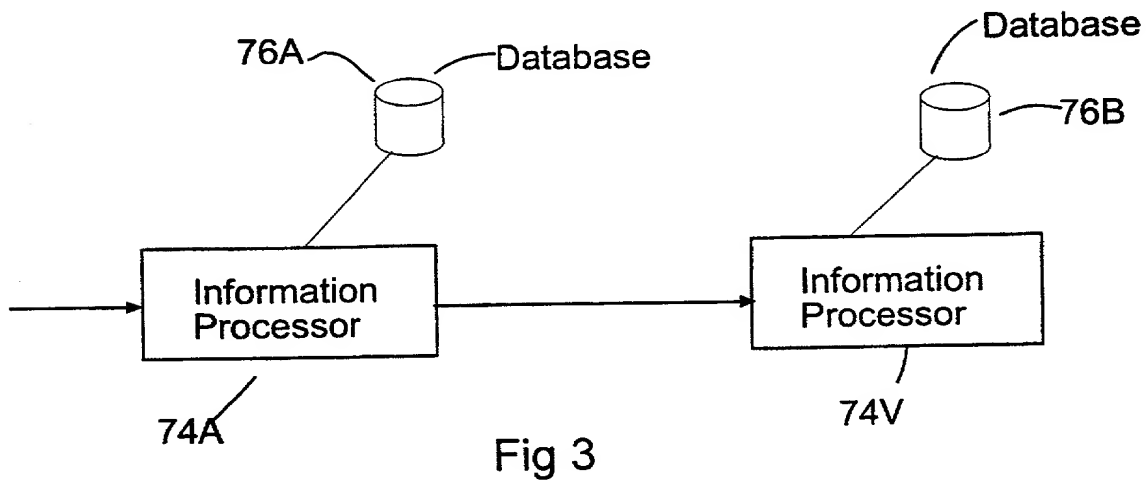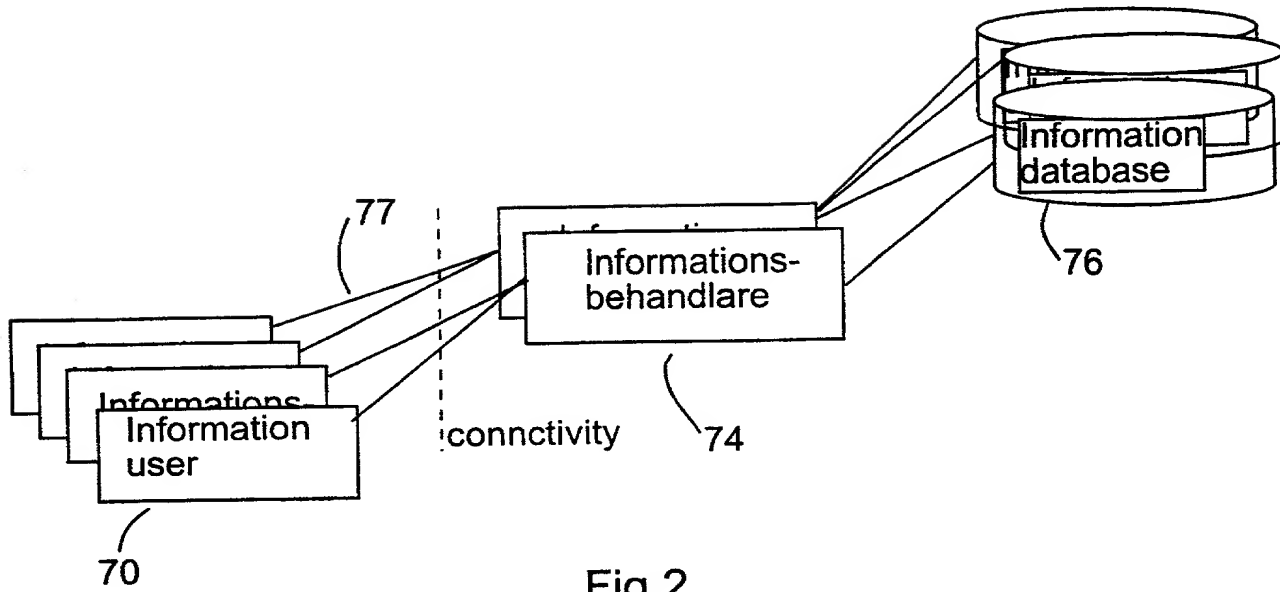(54) Title: COMMUNICATION NETWORK SERVICE MANAGEMENT METHOD AND DEVICE

(57) Abstract

A device and method for managing services in a communication network that are accessible in different component parts of the communication network, where the services may be requested from one part of the network that does not normally employ a requested service. A service request message is routed to an information processor, that identifies the requested service and consults with an information database that contains an association between network components and services provided by the network components. When network components are identified that provide the requested service, the information processor, initiates a communication session between the party initiating the service request message and the component that can provide the service.
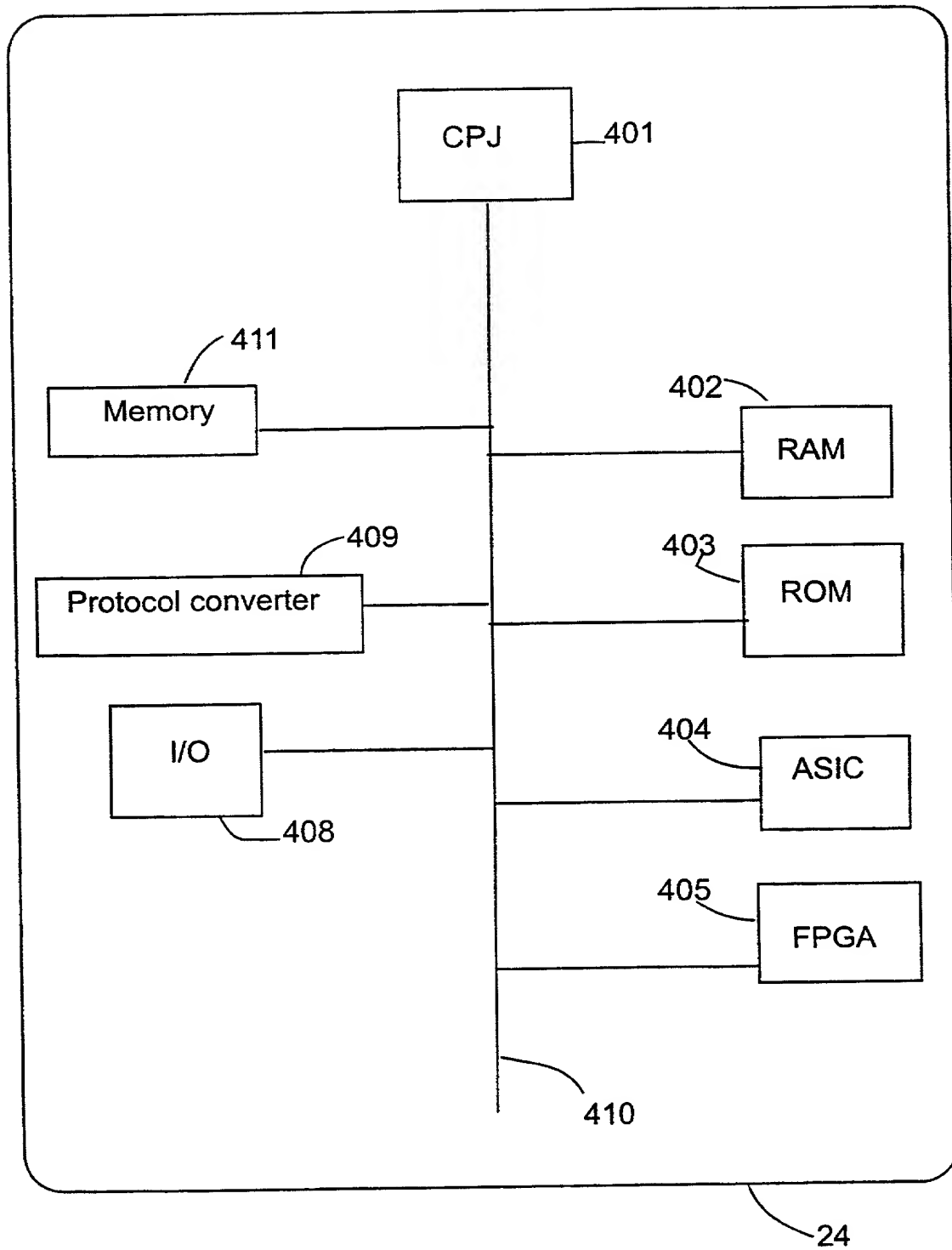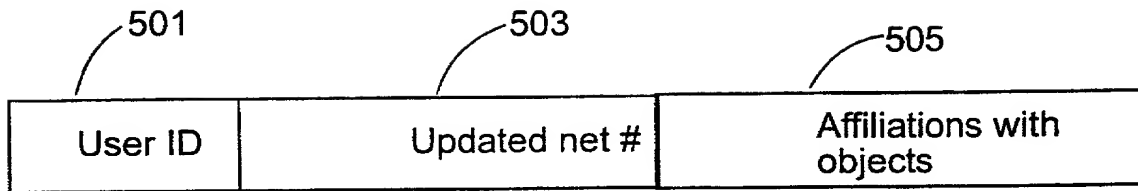
Background art

Fig 1

77

Informations-
behandlare

Information
database

76

Information user

Information
user

connctivity

74

70

Fig 2

76A

Database

Database

76B

Information
Processor

Information
Processor

74A

74V

Fig 3

Figure 4

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User ID	Updated net #	Affiliations with objects

501 — User ID
503 — Updated net #
505 — Affiliations with objects

Figure 5A

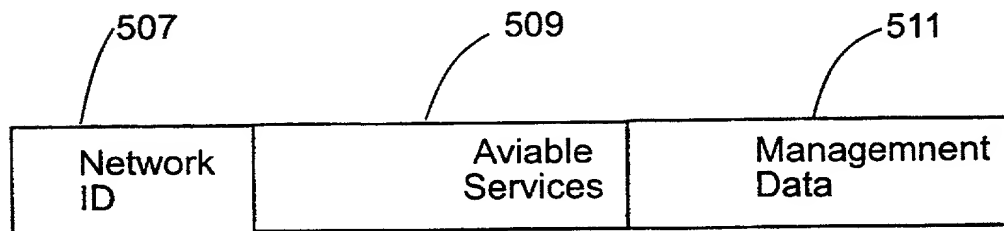| Network ID	Aviable Services	Managemnent Data

507 — Network ID
509 — Aviable Services
511 — Managemnent Data

Figure 5B
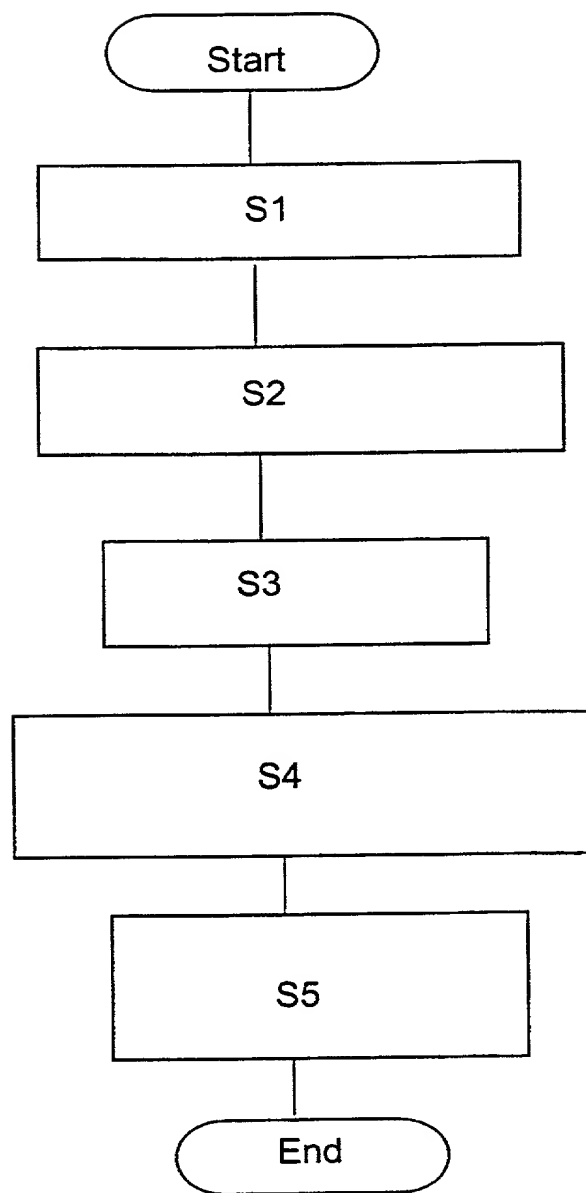
Figure 6

Declaration, Power of Attorney and Petition

WE (I) the undersigned inventor(s), hereby declare(s) that:

My residence, post office address and citizenship are as stated below next to my name,

We (I) believe that we are (I am) the original, first and joint (sole) inventor(s) of the subject matter which is claimed and for which a patent is sought on the invention entitled

COMMUNICATION NETWORK SERVICE MANAGEMENT METHOD AND DEVICE

the specification of which

☐ is attached hereto.

☐ was filed on _____ as

Application Serial No. _____

and amended on _____ .

☒ was filed as PCT international application

Number __PCT/SE00/00996__

on __May 18, 2000__ ,

and was amended under PCT Article 19

on _____ (if applicable).

    We (I) hereby state that we (I) have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

    We (I) acknowledge the duty to disclose information known to be material to the patentability of this application as defined in Section 1.56 of Title 37 Code of Federal Regulations.

    We (I) hereby claim foreign priority benefits under 35 U.S.C. § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed. Prior Foreign Application(s)

Application No.	Country	Day/Month/Year	Priority Claimed
9901820-2	Sweden	19 May 1999	☒ Yes ☐ No

We (I) hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

__60/141,002__	__June 29, 1999__
(Application Number)	(Filing Date)
(Application Number)	(Filing Date)

    We (I) hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s), or under § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

10/01

Application Serial No.	Filing Date	Status (pending, patented, abandoned)
PCT/SE00/00996	May 18, 2000	

And we (I) hereby appoint the following registered practitioner(s):

|||||||| 22850

as our (my) attorneys, with full powers of substitution and revocation, to prosecute this application and to transact all business in the Patent Office connected therewith; and we (I) hereby request that all correspondence regarding this application be sent to

|||||||| 22850

We (I) declare that all statements made herein of our (my) own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

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10/01